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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/630,835	07/31/2003	Yasuo Naganuma	030919	1963

23850 7590 09/08/2005

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EXAMINER

BIRENBAUM, NIRA S

ART UNIT	PAPER NUMBER
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1742

DATE MAILED: 09/08/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/630,835

Applicant(s)

NAGANUMA, YASUO

Examiner

Nira S. Birenbaum, Ph.D.

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 22 August 2005.
2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-13 is/are pending in the application.
4a) Of the above claim(s) 13 is/are withdrawn from consideration.
5) ☐ Claim(s) _____ is/are allowed.
6) ☒ Claim(s) 1-12 is/are rejected.
7) ☐ Claim(s) _____ is/are objected to.
8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 7-31-2003
4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____

DETAILED ACTION

Status of the Claims

According to applicant's election, claims 1-12 are currently under examination in the application. Claim 13 has been withdrawn from consideration.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claim 2 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The term "ceramic oxide" is indefinite because it does not refer to a specific type of particle.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hanagata *et al.* (US Patent No. 5,147,515) in view of Hradcovsky (US Patent No. 5,275,713).

Regarding claim 1, Hanagata teaches a method of forming a ceramic oxide film on a magnesium substrate (although the examples are directed to aluminum substrates, magnesium is another type of substrate which can be used in the method. See column 3, lines 45-50). The substrate is immersed in an electrolyte containing insoluble particles and an anodic potential is applied (see example 1). Although Hanagata does not expressly teach the formation of an oxide film by anodizing, this is inherent to the steps of placing the substrate in an electrolytic cell and making it the anode. Furthermore, although Hanagata does not expressly teach that the insoluble particles are incorporated into the oxide film, it is also inherent that components of the electrolyte bath would become incorporated into the oxide film as the film grows.

However, Hanagata does not teach that the electrolyte includes an alkali metal hydroxide.

Hradkovsky teaches a method for coating aluminum and magnesium substrates by anodizing the substrate in a colloidal solution containing insoluble metal oxide particles (column 4, lines 33-35 and lines 45-53). An alkali metal hydroxide is also included in the solution (column 4, lines 53-59). It would have been obvious to one of ordinary skill in the art at the time of the invention to include an alkali metal hydroxide as disclosed by Hradkovsky in the electrolyte solution of Hanagata, because Hradkovsky teaches that the addition of this component clarifies the precipitate and helps to achieve the proper colloidal suspension (column 4, lines 53-59).

Regarding claim 2, Hanagata teaches that the insoluble particles can be alumina, silica, or aluminum hydroxide (column 3, lines 1-2).

Regarding claims 3 and 4, Hanagata teaches that the particles have an average diameter of .03 μm (30 nm) to 20 μm , which overlaps with the claimed ranges (column 3, lines 7-8). See MPEP 2144.05 I.

Regarding claim 5, Hanagata teaches that the current density is from 1 to 5 A/dm^2 (column 4, lines 14-16). Furthermore, Hanagata teaches that the current is pulsed, which comprises a form of alternating current (column 4 lines, 17-20).

Regarding claim 6, Hanagata does not teach that the alternating current has a frequency in the range of 40-80 Hz. However, it would have been obvious to one of ordinary skill in the art at the time of the invention to apply alternating current with a frequency in the range of 40-80 Hz in the method of Hanagata in view of Hradkovsky, because main line current is commonly supplied as 60 Hz AC.

Regarding claim 7, Hanagata teaches that the temperature of the electrolyte is maintained between 15° to 60° (column 4, lines 5-7).

Regarding claim 8, Hanagata in view of Hradkovsky fails to teach that the concentration of the alkali metal hydroxide should be between 25 and 75 g/dm^3 . However, it would have been obvious to one of ordinary skill in the art at the time of the invention to optimize the concentration of alkali metal hydroxide in the electrolyte solution of Hanagata in view of Hradkovsky, because the concentration of alkali metal hydroxide (a strong base) affects the pH of the electrolyte, and is thus a result-effective variable (see Hradkovsky, column 5, lines 15-21). See MPEP 2144.05 IIB.

Regarding claim 9, Hanagata teaches that the electrolyte comprises an aqueous solution of a soluble silicate or an oxyacid salt (column 2, lines 37-43).

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Regarding claims 10 and 11, Hanagata teaches that the concentration of silicate or oxyacid salt is between 25 and 200 g/L, which overlaps with the claimed ranges (column 2, lines 53-56). See MPEP 2144.05 I.

Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hanagata *et al.* (US Patent No. 5,147,515) in view of Hradcovsky (US Patent No. 5,275,713), further in view of Miyosawa *et al.* (US Patent No. 3,960,676).

Hanagata and Hradcovsky teach the features as previously described. However, these references do not teach a second coating layer on top of the oxide film.

Miyosawa teaches a method for making conversion coatings on aluminum substrates using an electrolyte which comprises oxyacid salts. After the anodic conversion coating is applied, a finish coating is also applied (see abstract). It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the method of Hanagata in view of Hradcovsky by applying a finish coating as disclosed by Miyosawa, because Miyosawa teaches that finish coatings which are applied on top of conversion coatings have extremely high anti-corrosive properties (column 5, lines 26-37).

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Nira S. Birenbaum, Ph.D. whose telephone number is (571) 272-8516. The examiner can normally be reached on M-F 8:00 am - 4:30 pm.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Roy King can be reached on (571) 272-1244. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

nsb

ROY KING 
SUPERVISORY PATENT EXAMINER
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